R E M A R K S

Claims 1-3 and 19-31 are pending in the application. Claims 1, 20, 29, and 30 have been amended to include a definition for the epoxy resin advanced with phosphorus. Support for these amendments is found in the Specification at Page 1, paragraph 0003.

Rejection under §103(a) over Cooray et al. in view of Prescher at al.

Claims 1-3, 19-23, 26-27, and 29-30 stand rejected under 35 U.S.C. §103(a) as obvious over Cooray et al. (U.S. 2003/0211328) in view of Prescher at al. (U.S. 6,143,816). Applicants respectfully request reconsideration of this rejection.

Applicants are aware that limitations from the Specification are not read into the claims. On the other hand, M.P.E.P. §2173.05(a) I states that

> When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art.

Thus, the definition of the epoxy resin advanced with phosphorus in the Specification can be used to examine the present claims. However, to progress the prosecution of this case, Claims 1, 20, 29, and 30 have been amended to include the definition of "an epoxy resin advanced with phosphorus".

Applicants do **not** agree with the Examiner's position that the halogen free epoxy resin of Cooray et al. comprising phosphorus are like the resins of the present claims, which are advanced with phosphorus, since the difference between additive and reactive flame retardants is factual and not a matter of semantics.

The Examiner is correct that Applicants are not claiming a reactive phosphorus compound, but an epoxy resin advanced with phosphorus (Office Action, Page 2, last three lines). The point was that the resorcinol type phosphorus compound used in the epoxy resins of Cooray et al. are quite different than the phosphorus compounds used to used to form the epoxy resins of the present claims. Attached as Exhibit A is Page 3 from U.S. 2008/0214733, which states in Example 1 that FP-500, the phosphorus compound used in all of the inventive Examples of Cooray et al., is 1,3-phenylene-bis(dixylenyl phosphate). FP-500 does not have any active hydrogen atoms. Thus, the mixture of an epoxy resin and a resorcinol type phosphorus compound taught in Cooray et al. and the presently claimed epoxy resin that has been partially reacted with an organophosphorus compound that contains an active hydrogen atom are not at all alike.

Turning now to the combination rejection, Cooray et al. and Prescher et al. teach away from each other. The purpose in each is different: Cooray et al. is directed to forming insulating layers in circuit boards and uses epoxy resins (abstract; Page 1, paragraph 0012); Prescher et al. is directed to a filler material for cable sheaths and cable insulation (column 2, lines 11-12), and the cable sheaths and cable insulation are made from plastics, such as polypropylene and polyamide (column 2, lines 13-14).

In addition to the difference of purpose and materials for accomplishing those goals (epoxy resins v. polypropylene and polyamide), the amounts of aluminum hydroxide taught in the formulations of Cooray et al. and of Prescher et al. are quite disparate, and thus further discourage their combination. More specifically, the amount of aluminum hydroxide in the formulations in Cooray et al. is disclosed be 15 to 20 wt%, as the Examiner has recognized. In contrast, Prescher et al. teaches that the aluminum hydroxide (boehmite) therein is 55 to 75 wt% of the formulations therein. Therefore, the disclosures of Cooray et al. and Prescher et al. strongly discourage their combination. These teachings of Prescher et al. cannot be ignored; a reference is prior art for all that it teaches. *Beckman Instruments v. LKB Produkter AB*, 892 F.2d 1547, 1551, 13 U.S.P.Q.2d 1301, 1304 (Fed. Cir. 1989).

Since the purposes and the resins of Cooray et al. and Prescher et al. are quite different, as well as the amount of aluminum hydroxide used, it would not have been obvious to one of skill in the art to employ the boehmite aluminum hydroxide of Prescher et al. in the epoxy resins of Cooray et al. Furthermore, at least one of the benefits of boehmite mentioned by Prescher et al. and reiterated in the present Office Action (Page 4, lines 5-7) –extrusion speed– is not critical to the formation of insulating layers of epoxy resins (as in Cooray et al.).

Notwithstanding the foregoing, Claims 3 and 22 are not mere optimizations of Cooray et al. As already mentioned, the epoxy resin advanced with phosphorus of the present claims is not like the mixture of resorcinol type phosphorus compound and epoxy resin. Moreover, Claims 3 and 22 are directed to an amount of boehmite, about 30 to about 50 parts per hundred parts of epoxy resin, that is well above the upper limit for aluminum hydroxide in the formulations of Cooray et al. (12 wt%).

For all of the foregoing reasons, this rejection should be reconsidered and withdrawn.

Rejection under §103(a) Cooray et al. in view of Prescher at al. and Okamoto et al.

Claims 24-25, 28 and 31 stand rejected under 35 U.S.C. §103(a) as obvious over Cooray et al. in view of Prescher at al. and Okamoto et al. (U.S. 4,224,302). Applicants respectfully request reconsideration of this rejection.

All of the remarks made in the discussion above of the §103(a) rejection of Claims 1-3, 19-23, 26-27, and 29-30 over Cooray et al. in view of Prescher at al. apply equally here.

Okamoto et al. does not cure the disclosure deficiencies of Cooray et al. and/or Prescher at al., nor does Okamoto et al. ameliorate any of the teaching away in Cooray et al. and/or Prescher at al. The disclosure of Okamoto et al. teaches the formation of boehmite and α-alumina. No flame retardant applications are suggested in Okamoto et al., which is directed to catalyst carriers for use in internal combustion engines (column 1, lines 11-16).

Furthermore, it would not have been obvious to use the boehmite taught in Okamoto et al. in formulating the epoxy resins of Cooray et al. in view of Prescher et al. (even assuming the combination were viable), since the desirable properties referred to in Okamoto et al. are not for the boehmite therein. In the abstract, the "catalyst carrier high in strength" refers to α-alumina. At column 1, lines 19-25, Okamoto et al. is discussing the γ-alumina already known in the art. Examples I-V of Okamoto et al. teach the formation of boehmite; no properties of the boehmite are disclosed. Examples VI-IX of Okamoto et al. teach the formation of **α-alumina**, and the properties of the formed α-alumina are summarized in Table 1 in column 7 of Okamoto et al.

Thus, the teachings in Okamoto et al. regarding specific surface (area) and bulk density are for α-alumina, not for boehmite, and the disclosure of Okamoto et al. would not have assisted in any way to make Claims obvious to one of skill in the art.

For all of the foregoing reasons, this rejection should be reconsidered and withdrawn.

Entry of the above amendments is solicited on the ground that it places the case either in condition for allowance or at least in better condition for appeal.

In light of the foregoing amendments and remarks, the case is believed to be in condition for allowance. Prompt notification to this effect would be sincerely appreciated.

However, if any matters remain that require further consideration, the Examiner is requested to telephone the undersigned at the number given below so that such matters may be discussed, and if possible, promptly resolved.

Please continue to address all correspondence in this Application to Albemarle Corporation at the address of record.

Respectfully submitted,

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downstream feed-port location at a distance of 8D to 30D, from the main feed throat of the extruder.

[0017] This invention is illustrated by the following examples that are merely for the purpose of illustration and are not to be regarded as limiting the scope of the invention or the manner in which it can be practiced. Unless specifically indicated otherwise, parts and percentages are given by weight.

EXAMPLE 1

[0018] Through the main feeder of a ZSK 25 twin screw extruder (L/D=44) at a rate of 500 rpm and a set temperature profile of 25° C. (feed), 195° C. (Zone 2), 225° C. (Zone 3), 260° C. (Zone 4), 260° C. (Zone 5), 260° C. (Zone 6), 260° C. (Zone 7), 260° C. (Zone 8), 260° C. (Zone 9), 240° C. (Zone 10), 240° C. (Zone 11), 240° C. (die), were charged 85.35 parts of polycarbonate, 10 parts of FP-500 1,3-phenylene-bis (dixylenyl phosphate) from Amfine Chemical Corporation, 1.50 parts of Lotader® 8900 terpolymer of ethylene, methyl methacrylate and glycidyl methacrylate, 1.50 parts of Metablen® S 2001 copolymer of methyl methacrylate, butyl acrylate and dimethylsiloxane, 1 part of 4-7051 resin modifer silica from Dow Corning, 0.2 parts of Polyflon PTFE L-2 from Daikin, 0.24 parts of ELC-1010 tetrakis methylene (3,5-di-t-butyl-4-hydroxyhydrocinnamate) methane from Ed-Lynn Network Polymers, and 0.20 parts of Doverphos® S-9228 bis (2,4-dicumylphenyl) pentaerythritol diphosphite stabilizer. The product was pelletized and dried at 100° C. for 4 hours to a moisture content of less than 0.05% by weight. Then, test specimens were made by injection molding and were allowed to condition at a temperature of 23° C. for at least 4 hours before testing. The properties of the polycarbonate composition made in this experiment are summarized in Table 1.

TABLE 1

Properties	Test Method	Units	Example 1
Strain at Break	ASTM D638	%	66
Tensile Strength at yield	ASTM D638	MPa	56.3
Tensile Strength at Break	ASTM D638	MPa	61.4
Tensile Modulus	ASTM D638	MPa	2037
Flexural Modulus	ASTM D790	MPa	2804
Flexural Strength	ASTM D790	MPa	98.9
Notched Izod at 23° C.	ASTM D256	KJ/m^2	18.9
HDT at	ASTM D648	° C.	
0.45 MPa			110
1.82 MPa			
Flammability rating	UL94 (0.059 in)	—	V0

EXAMPLE 2

[0019] Through the main feeder of a ZSK 25 twin screw extruder (L/D=44) at a rate of 500 rpm and a set temperature profile of 25° C. (feed), 195° C. (Zone 2), 225° C. (Zone 3), 260° C. (Zone 4), 260° C. (Zone 5), 260° C. (Zone 6), 260° C. (Zone 7), 260° C. (Zone 8), 260° C. (Zone 9), 240° C. (Zone 10), 240° C. (Zone 11), 240° C. (die), were charged 85.35 parts of polycarbonate, 10 parts of FP-500 1,3-phenylene-bis (dixylenyl phosphate) from Amfine Chemical Corporation, 1.50 parts of Lotader® 8900 terpolymer of ethylene, methyl methacrylate and glycidyl methacrylate, 1.50 parts of Metablen® S 2001 copolymer of methyl methacrylate, butyl acrylate and dimethylsiloxane, 1 part of SFR100 silicone fluid from GE Silicones, 0.2 parts of Polyflon PTFE L-2 from Daikin, 0.24 parts of ELC-1010 tetrakis methylene (3,5-di-t-butyl-4-hydroxyhydrocinnamate) methane from Ed-Lynn Network Polymers, and 0.20 parts of Doverphos® S-9228 bis (2,4-dicumylphenyl) pentaerythritol diphosphite stabilizer. The product was pelletized and dried at 100° C. for 4 hours to a moisture content of less than 0.05% by weight. Then, test specimens were made by injection molding and were allowed to condition at a temperature of 23° C. for at least 4 hours before testing. The properties of the polycarbonate composition made in this experiment are summarized in Table 2.

TABLE 2

Properties	Test Method	Units	Example 2
Strain at Break	ASTM D638	%	61
Tensile Strength at yield	ASTM D638	MPa	53.8
Tensile Strength at Break	ASTM D638	MPa	56.5
Tensile Modulus	ASTM D638	MPa	1627
Flexural Modulus	ASTM D790	MPa	2610
Flexural Strength	ASTM D790	MPa	93.3
Notched Izod at 23° C.	ASTM D256	KJ/m^2	80.7
HDT at	ASTM D648	° C.	
0.45 MPa			110
1.82 MPa			
Flammability rating	UL94 (0.059 in)	—	V0

EXAMPLE 3

[0020] Through the main feeder of a ZSK 25 twin screw extruder (L/D=44) at a rate of 500 rpm and a set temperature profile of 25° C. (feed), 195° C. (Zone 2), 225° C. (Zone 3), 260° C. (Zone 4), 260° C. (Zone 5), 260° C. (Zone 6), 260° C. (Zone 7), 260° C. (Zone 8), 260° C. (Zone 9), 240° C. (Zone 10), 240° C. (Zone 11), 240° C. (die), were charged 83.35 parts of polycarbonate, 10 parts of FP-500 1,3-phenylene-bis (dixylenyl phosphate) from Amfine Chemical Corporation, 1.50 parts of Lotader® 8900 terpolymer of ethylene, methyl methacrylate and glycidyl methacrylate, 1.50 parts of Metablen® S 2001 copolymer of methyl methacrylate, butyl acrylate and dimethylsiloxane, 1 part of 4-7051 resin modifer silica from Dow Corning, 0.2 parts of Polyflon PTFE L-2 from Daikin, 2 parts of Bentone 107 from Elementis Specialty, 0.24 parts of ELC-1010 tetrakis methylene (3,5-di-t-butyl-4-hydroxyhydrocinnamate) methane from Ed-Lynn Network Polymers, and 0.20 parts of Doverphos® S-9228 bis(2,4-dicumylphenyl) pentaerythritol diphosphite stabilizer. The product was pelletized and dried at 100° C. for 4 hours to a moisture content of less than 0.05% by weight. Then, test specimens were made by injection molding and were allowed to condition at a temperature of 23° C. for at least 4 hours before testing. The properties of the polycarbonate composition made in this experiment are summarized in Table 3.

TABLE 3

Properties	Test Method	Units	Example 3
Strain at Break	ASTM D638	%	55
Tensile Strength at yield	ASTM D638	MPa	55.7
Tensile Strength at Break	ASTM D638	MPa	55.3
Tensile Modulus	ASTM D638	MPa	2014
Flexural Modulus	ASTM D790	MPa	3061

EXHIBIT A